ABSTRACT

DETERMINATION OF SENSITIVITY PATTERN AND TREATMENT OUTCOME IN CULTURE POSITIVE BACTERIAL KERATITIS

AIM:

To determine the risk factors, bacteriological profile, sensitivity pattern and treatment outcome of culture positive bacterial keratitis at a tertiary eye care center in a developing country

METHODOLOGY:

This is a prospective observational study done in a period of one year of recruitment and 3 months of follow up (1st December 2015 to 28 February 2017). Here 2130 corneal ulcer patients attending tertiary eye care center were subjected to KOH , Gram's stain , culture in blood agar and in sabouraud's dextrose agar. Culture sensitivity were determined by Muller Hinton disc diffusion method. Treatment outcome is measured in terms of visual acuity and ulcer healing at 3 weeks and 3 months of follow up.

RESULTS:

In our study, out of 2130 patients , 256 were bacterial culture positive. Gram positive organisms were more in number (n=142) compared to gram negative organisms (n=114). Among gram positive organisms, streptococcus pneumoniae were most common 59%, and among gram negative organisms pseudomonas species were most common 69%. Streptococcus species were more sensitive to 3rd generation cephalosporins, 3rd generation fluroquinolones and vancomycin and most resistant to old generation fluroquinolones (ciprofloxacin , ofloxcin). Pseudomonas species were most sensitive to fluroquinolones like moxifloxcin and most resistant to

cephotaxim. All organisms both gram positive and gram negative were sensitive to vancomycin except Nocardia. Out of 6 isolates, four were resistant to vancomycin but these are found to be more sensitive to aminoglycosides mainly amikacin. Out of 256 patients 174 fit into our inclusion and exclusion criteria and treatment outcome were analysed for the same population. Impact of clinical profile (ulcer size, site, depth of infiltrate) over treatment outcome were analysed and are found to be statistically significant with P value <0.05. Out of 176 patients, 31% (n=54) had change in antibiotics according to culture sensitivity pattern and its effect were analysed. Out of 54 patients, 64.51%(n=35) were improved and 35.14%(n=14) were not improved after change in antibiotics.

CONCLUSION:

From our study population we analysed , Gram positive organisms like Streptcoccus were sensitive to 3rd generation cephalosporins and gram negative bacteria like Pseudomonas were sensitive to 3rd generation fluroquinolones. The predictors of poor treatment outcome from our study are as follows , patient who presented late (>7 days), patients who had high glycemic levels, Patients with central, larger and deeper corneal ulcer, patients who needs change in antibiotics either for clinical deterioration or according to sensitivity pattern. Hence patients with above clinical characteristics should be followed up regularly. By doing which the morbidity due to corneal ulcer and preventable blindness can be decreased.

KEYWORDS:

Bacterial keratitis, Bacteriological profile, Culture sensitivity, Cephalosporins, Fluroquinolones Treatment outcome.